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BAKER BOTTS, LLP 910 LOUISIANA HOUSTON, TX 77002-4995			MEINECKE DIAZ, SUSANNA M	
			ART UNIT	PAPER NUMBER
			3623	
DATE MAILED: 09/26/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,396

Applicant(s)

LYON ET AL.

Examiner

Susanna M. Diaz

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Final Office action is responsive to Applicant's amendment filed July 8, 2005.

Claims 1-8, 11-21, 23-29, 31-34, 36, 38, 40-42, 44-60, 62, 64-66, and 68-70 have been amended.

Claims 1-70 are pending.

2. The previously pending rejection of claims 1-14 under 35 U.S.C. § 101 is withdrawn in response to Applicant's amendment of claim 1.

The previously pending rejections under 35 U.S.C. § 112 are withdrawn in response to Applicant's amendments of the claims.

Response to Arguments

3. Applicant's arguments filed July 8, 2005 have been fully considered but they are not persuasive.

Regarding the § 101 rejection, Applicant cites the *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* and *AT&T Corp. v. Excel Communications, Inc.* cases (pages 27-28 of Applicant's response); however, Applicant does not explain how these cases are relevant to the claimed invention at hand. The Examiner submits that these cases do not address the exact same fact patterns as those found in the instantly claimed invention; therefore, Applicant's argument is non-persuasive. Please refer to MPEP § 2106 for further guidance regarding the § 101 rejection.

Applicant argues:

...applicants take exception to the assertion Layden simply stating that "orders are launched as soon as they arise" does not anticipate any element of the present invention. Layden does not indicate what "launched" means. Layden could have referred to many things, but there is no indication that Layden was referring to a generating a work schedule and a delivery schedule and then providing the work schedule to the manufacturing line as required by the limitations of independent claim 1. It is respectfully submitted that Layden does not provide sufficient specificity of what "launched" means in order to combine it with Lilly and encompass the limitations of the independent claims of the instant invention. (Pages 28-29 of Applicant's response)

The Examiner respectfully disagrees. Paragraph 5 of Layden states, "The most dynamic factories run without a plan at the floor level; orders are launched as soon as they arrive." Layden builds on this concept and explains that next-generation systems perform even more rapid resynchronization (in comparison to their predecessors) as new orders come in. For example, new orders are released to the floor in real-time upon order acceptance (§ 14). If resynchronization in response to new orders and respective order priorities cause system upsets, then priorities throughout the factory are adjusted (§§ 14-15). Clearly, Layden's disclosure of order-driven manufacturing emphasizes how orders are integrated into a facility manufacturing schedule as these orders come in and are approved, in real time. Therefore, Applicant's argument is non-persuasive.

Applicant argues that Jenkins is not prior art because Applicant cannot review the provisional application to which Jenkins claims priority to determine if Jenkins is fully supported by its provisional application. The Examiner maintains that at least the

portions of Jenkins cited in the art rejection are supported by the provisional application (application no. 60/243,400), which Applicant may obtain a copy of through the Patent Office or access on the Internet at <http://portal.uspto.gov/external/portal/pair> .

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 15-34 and 47-70 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

- (1) whether the invention is within the technological arts; and
- (2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the technological arts. Mere ideas in the abstract (i.e., abstract idea, law of nature, natural phenomena) that do not apply, involve, use, or advance the technological arts fail to promote the "progress of science and the useful arts" (i.e., the physical sciences as opposed to social sciences, for example) and therefore are found to be non-statutory subject matter. For a process claim to pass muster, the recited process must somehow apply, involve, use, or advance the technological arts.

While claims 15-34 recite a useful, concrete, and tangible result, they do not apply, involve, use, or advance the technological arts and are therefore deemed to be non-statutory. Please note that claims 1-14 are now deemed to be statutory because

Art Unit: 3623

they expressly recite that one or more items are actually manufactured, which is an example of applying, involving, using, and advancing the technological arts.

It is not clear to which statutory class claims 47-58 belong. Both a computer readable medium for storing and executing instructions as well as a computer-readable medium containing a data structure are recited. However, it is not clear whether the claims are directed toward a data structure or a computer program product, especially since the instructions are not expressly used to instruct a computer/processor to execute the related steps.

Claims 59-70 are directed to a signal; however, the signal is not recited as being statically embodied in a computer readable medium. For example, a carrier wave is merely an electrical signal traveling through air or water while the air or water is the communication medium. Also, the instructions are not expressly recited as executable since they do not instruct a computer/processor. Furthermore, it is not clear how the computer-readable medium recited in the last step of claim 59 relates to the signal, if at all; therefore, claims 59-70 are interpreted as reciting a signal *per se*, which is non-statutory subject matter.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 3623

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5, 7-26, and 28-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Layden ("A Rapidly Changing Landscape").

Lilly discloses a method of scheduling a manufacturing line comprising:

[Claim 1] generating a work schedule and a material delivery schedule using at least one outstanding customer order, each customer order of the at least one outstanding customer order including at least one item, the generating the work schedule including scheduling work to manufacture each item of the at least one item on an operation of at least one operation on the manufacturing line, the generating the delivery schedule including scheduling a delivery of material to manufacture each item of the at least one item to the operation, wherein the scheduling the delivery includes scheduling the delivery of the material prior to the time the material is needed according to the work schedule (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders);

providing the material delivery schedule for the delivery of the material to manufacture each item of the at least one item according to the material delivery schedule (col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials);

wherein one or more items are manufactured on the manufacturing line according to the schedule (abstract; col. 4, lines 33-37).

As per claim 1, Lilly does not expressly teach that the incorporation of the step of providing the work schedule to the manufacturing line, substantially immediately after generating the work schedule, for initiating work to mass produce each of the at least one item according to the work schedule nor that all recited steps are repeated a plurality of times during a manufacturing shift. However, Layden discusses order-driven manufacturing scheduling techniques (§ 3) in which dynamic plant management is employed (§ 5), thereby allowing dynamic factories to be "run without a plan at the floor level; orders are launched as soon as they arrive." (§ 5) Layden's disclosed scheduling techniques are based upon well-known scheduling theories, including "backward pass" and "forward pass" (§ 26), both of which are utilized by Lilly. Layden's scheduling techniques allow one to instantly communicate orders to the shop floor, scheduling

Art Unit: 3623

them as they arrive (¶¶ 5, 9). Layden states, "Integration of scheduling and material planning balances plantwide priorities against the need for optimal workstation sequencing. The order-of-work is not generated until the operation start time." (¶ 11) Material and resource constraints are taken into account in order to perform rapid resynchronization of customer orders (¶ 13). This allows for the immediate release of new orders to the floor in real time upon acceptance and the implementation of last-minute customer order changes as well as the insertion of priority orders (¶ 14). Layden's rapid order flow performs the steps of "reserving resources and material, triggering reorders, and continuously adjusting for status changes" (¶ 11). Clearly, Layden bases its principles on the common scheduling techniques utilized by Lilly (e.g., using forward and backward scheduling algorithms to incorporate material and resource availability and generate a production schedule) and enhances them by providing the work schedule to the manufacturing line, substantially immediately after generating the work schedule, for initiating work to mass produce each of the at least one item according to the work schedule and repeating all recited steps a plurality of times during a manufacturing shift, thereby making the order-driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc. Consequently, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to implement these enhancements taught by Layden with the details of Lilly's production planning and scheduling system in order to reap these benefits (i.e., making the order-

driven manufacturing process more efficiently and effectively responsive to new customer orders, priority orders, last-minute customer changes, etc.).

[Claim 2] Regarding claim 2, since the Lilly-Layden combination teaches the details of a production planning and scheduling system that resynchronizes the production schedule and ordering of materials in real-time responsive to new customer orders, priority orders, last-minute customer changes, etc., the Examiner asserts that the limitations “wherein each time of the plurality of times that the series of steps is repeated is a repetition and the scheduling the delivery of the material prior to the time the material is needed according to the work schedule includes scheduling the delivery of the material at most one repetition prior to the time the material is needed” is addressed by the Lilly-Layden combination.

[Claim 3] Lilly discloses that the material is delivered from an available inventory of material at a material source (col. 5, lines 24-67; col. 8, lines 33-67 -- Inherently, the entity that makes a material available can be viewed as a material source).

[Claims 4, 5] Since Lilly teaches that a material availability is assessed by determining when a supply will be received into inventory (col. 8, lines 33-67), this implies that the needed materials may be ordered from an external inventory, including a supplier inventory. By definition, an entity that supplies another entity with materials is a supplier of those materials.

[Claim 7] Lilly discloses that the generating a work schedule comprises adding work to the work schedule and the generating a material delivery schedule comprises adding a delivery of the identified material from an available inventory of material to an

Art Unit: 3623

operation of at least one operation on a manufacturing line to the material delivery schedule (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders);

[Claim 8] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule at a start time; and the adding the delivery to the material delivery schedule comprises adding the delivery to the material delivery schedule at a material delivery time prior to the start time (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15

Art Unit: 3623

discuss the forward and backward scheduling algorithms that may be used to schedule work orders);

[Claim 9] Lilly discloses determining an expected availability of the identified material from the available inventory and wherein the adding the work to the work schedule includes adding the work at a start time after the expected availability of the identified material (col. 4, lines 33-44 -- Each customized order from a customer is integrated into a work schedule; col. 5, lines 24-67; col. 6, line 65 through col. 7, line 22 -- Resource availability, material availability, and work order information are all used to schedule the delivery of needed materials as well as to schedule the ultimate assembly of the ordered product; col. 8, lines 33-67 -- If all materials are currently available, the work order may be scheduled. Otherwise, the work order may need to be rescheduled based on the lead time of the needed materials; col. 9, lines 8-25 -- Work orders may be scheduled by priority; Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders).

[Claim 10] Lilly discloses that the determining the expected availability of the identified material from the available inventory comprises:

- determining whether the available inventory of material includes the identified material;

- when the available inventory includes the identified material, determining a replenishment time for the identified material and using the replenishment time to determine the expected availability of the identified material;

when the available inventory does not include the identified material, determining that the expected availability is that the identified material is not available (col. 5, lines 24-67; col. 8, lines 33-67).

[Claim 11] Lilly discloses that the determining that the expected availability is that the identified material is not available further comprises flagging an exception (col. 8, lines 33-67 -- If a material is not readily available, then production of the order needs to be reschedule).

[Claim 12] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule according to a priority of the customer order (col. 5, lines 62-63; col. 9, lines 12-19).

[Claim 13] Lilly discloses that the adding the work to the work schedule comprises adding the work to the work schedule according to an order date of the customer order (Columns 9-15 discuss the forward and backward scheduling algorithms that may be used to schedule work orders).

[Claim 14] Lilly discloses that the item is a commodity (col. 4, lines 35-38).

[Claims 15-26, 28-34] Claims 15-26 and 28-34 recite limitations already addressed by the rejection of claims 1-5 and 7-14 above; therefore, the same rejection applies.

Regarding claims 15 and 16, as discussed above, the Lilly-Layden combination discloses a planning and schedule system that resynchronizes the production schedule and ordering of materials in real-time responsive to new customer orders, priority orders, last-minute customer changes, etc.; therefore, the Examiner asserts that the

Art Unit: 3623

Lilly-Layden combination addresses the limitations that a plurality of work schedules for one manufacturing line are generated during a manufacturing shift (claim 15) and a plurality of material delivery schedules for one manufacturing line are generated during a manufacturing shift (claim 16).

Regarding claims 29-34, as discussed above, the Lilly-Layden combination discloses a planning and schedule system that resynchronizes the production schedule and ordering of materials in real-time responsive to new customer orders, priority orders, last-minute customer changes, etc. Different workstations may be assigned particular stages of the manufacturing process (see at least & 11 of Layden). Furthermore, each order is customized to the respective customer's specifications; therefore, the Examiner asserts that the Lilly-Layden combination addresses the limitations that the using a customer order includes using a plurality of customer orders (claim 29), assigning one of a plurality of manufacturing lines to the customer order (claim 30), wherein the identified material includes a plurality of identified materials (claim 31), the adding the work to the work schedule includes adding a plurality of work to the work schedule (claim 32), the adding the delivery to the material delivery schedule includes adding a plurality of deliveries to the material delivery schedule (claim 33), and the customer order includes a plurality of items (claim 34, please note that claim 29 recites that a customer order includes using a plurality of customer orders, which opens claim 34 to the interpretation that a plurality of customer orders exemplifies a plurality of items as well).

Art Unit: 3623

[Claims 35-46] Claims 35-46 recite limitations already addressed by the rejection of claims 1-5 and 7-14 above; therefore, the same rejection applies.

Furthermore, Lilly's invention is implemented using a variety of personal computers (col. 4, lines 45-57). In general, the Examiner asserts that it is old and well-known that the use of a computer is beneficial in performing calculations more accurately and quickly than they would be performed by hand, especially when the calculations involve such complex algorithms and analysis as that disclosed by Lilly and Layden. Since Lilly already uses a variety of personal computers, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Layden combination to perform all of the recited steps using a computer/a variety of personal computers (including a memory and processor) in order to perform the recited calculations and analysis more accurately and quickly than they would be performed by hand.

[Claims 47-58] Claims 47-58 recite limitations already addressed by the rejection of claims 1-5 and 7-14 above; therefore, the same rejection applies.

Furthermore, Lilly's invention is implemented using a variety of personal computers (col. 4, lines 45-57). In general, the Examiner asserts that it is old and well-known that the use of a computer is beneficial in performing calculations more accurately and quickly than they would be performed by hand, especially when the calculations involve such complex algorithms and analysis as that disclosed by Lilly and Layden. Since Lilly already uses a variety of personal computers, the Examiner asserts

Art Unit: 3623

that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Layden combination to perform all of the recited steps using a computer/a variety of personal computers (including a computer program product) in order to perform the recited calculations and analysis more accurately and quickly than they would be performed by hand.

[Claims 59-70] Claims 59-70 recite limitations already addressed by the rejection of claims 1-5 and 7-14 above; therefore, the same rejection applies.

Furthermore, Lilly's invention is implemented using a variety of personal computers (col. 4, lines 45-57). In general, the Examiner asserts that it is old and well-known that the use of a computer is beneficial in performing calculations more accurately and quickly than they would be performed by hand, especially when the calculations involve such complex algorithms and analysis as that disclosed by Lilly and Layden. Since Lilly already uses a variety of personal computers, the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the Lilly-Layden combination to perform all of the recited steps using a computer/a variety of personal computers (including a signal) in order to perform the recited calculations and analysis more accurately and quickly than they would be performed by hand.

8. Claims 6 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lilly et al. (U.S. Patent No. 5,787,000) in view of Layden ("A Rapidly Changing

Art Unit: 3623

Landscape”), as applied to claims 4 and 26 above, and further in view of Jenkins et al. (US 2002/0188499).

[Claim 6] As per claim 6, the Lilly-Layden combination does not expressly teach that materials delivered from available inventory are selected from an in-transit inventory. However, Jenkins teaches the tracking of available materials throughout a supply chain, including in-transit inventory, in order to quickly resolve conflicts with respect to product availability when they arise (¶¶ 7-8). Since the Lilly-Layden combination is applied to an order-driven manufacturing environment (in which perfect timing of the arrival of needed materials is crucial for the reasons discussed above), the Examiner asserts that it would have been obvious to one of ordinary skill in the art at the time of Applicant’s invention to adapt the Lilly-Layden combination to schedule the delivery of materials from available inventory, including in-transit inventory, in order to facilitate the quick resolution of conflicts with respect to product availability when they arise, thereby minimizing any negative impact to the order-driven manufacturing plans when such conflicts arise.

[Claim 27] Claim 27 recites limitations already addressed by the rejection of claim 6 above; therefore, the same rejection applies.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (571) 272-6733. The examiner can normally be reached on Monday-Friday, 10 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 09/774,396
Art Unit: 3623

Page 18


Susanna M. Diaz
Primary Examiner
Art Unit 3623

September 20, 2005